CONTENTS

NUMBER 1, JANUARY 1965

PA	GE
The influence of pressure on electrolytic conduction in alkali silicate glasses. By S. D. Hamann	1
Syntheses and properties of di(cyclopentadienyl)titanium(III) chloride. By	•
A. F. Reid and P. C. Wailes	9
Organoaluminium compounds. VIII. The reactions of organoaluminium	
hydrides with phenylacetylene. By J. R. Surtees	14
Reactions of free radicals with aromatic compounds in the gaseous phase. II. Kinetics of the reaction of methyl radicals with phenol. By M. F. R.	
Mulcahy and D. J. Williams	20
distribution of tritium. By S. J. Angyal, C. M. Fernandez, and J. L.	
Garnett	39
region 1350–900 cm ⁻¹ . By A. R. H. Cole and A. J. Michell	46
Festucine, an alkaloid from tall fescue (Festuca arundinacea Schreb.): chemistry	
of the functional groups. By S. G. Yates and H. L. Tookey	53
Synthetic studies in the 1,2-dithiole series. II. Routes to 4-methylamino-1,2-dithiole-3-thione. By R. F. C. Brown, I. D. Rae, and S. Sternhell	61
The synthesis of [18] annulene trisulphide. By G. M. Badger, J. A. Elix, and	01
G. E. Lewis	70
${\bf Flavan\ derivatives.\ XII.\ Conversion\ of\ flavan-3, 4-cis-diols\ into\ trans-diacetates,}$	
and a new route to 3,4-trans-diacetoxy-2,3-cis-flavans. By J. W. Clark-	00
Lewis and L. R. Williams	90
Short Communications	
The infrared spectra of some organotin oxides. By R. A. Cummins	98
Effect of solvent on infrared measurements of hydrogen bond strength. By	
A. R. H. Cole and A. J. Michell	102
	108
Morolic acid (3-hydroxyolean-18-en-28-oic acid) from the bark of Eucalyptus	100
	115
Comparative reactivity of 1-fluoro-2,4-dinitrobenzene and other aromatic	
	117
Chlorine atom abstraction by methyl radicals. By K. D. King and E. S.	101
Swinbourne	121
	123
	126

Number 2, February 1965

P	AGE
Spectroscopic studies of thioamides. I. The infrared spectrum of cyanothioform-	
amide. By Valerie F. Duckworth and R. L. Werner	129
Studies in aerial oxidation: salts of methylbenzoic acids. By J. W. Milne, J. S.	
Shannon, and S. Sternhell	139
Some studies in inorganic complexes. XVIII. 2-Thioamidopyridine and	
N -methyl-2-aminomethylpyridine complexes of palladium(Π) and	
platinum(II). By G. J. Sutton	150
Organophosphorus compounds. IV. The reaction of alk-1-ynes with phosphorus	
pentachloride, and a new route to alka-1,2-dienes. By A. Meisters and	
J. M. Swan	155
Organophosphorus compounds. V. Dialkyl alkylphosphonates from alkyl halides	
and sodium dialkyl phosphonates in liquid ammonia. By A. Meisters and	
J. M. Swan	163
Organophosphorus compounds. VI. The "abnormal" Michaelis-Becker reaction.	
Diethyl 1-phenylepoxyethylphosphonate and diethyl 1-phenylvinyl	
phosphate from diethyl phosphonate and phenacyl chloride. By A.	
Meisters and J. M. Swan	168
Characterization of bis[chloridodi(cyclopentadienyl)zirconium] oxide, a com-	
pound containing the Zr-O-Zr linkage. By A. F. Reid, J. S. Shannon,	
J. M. Swan, and P. C. Wailes	173
Pigments of marine animals. III. The synthesis of some substituted polyhydroxy-	
anthraquinones. By T. F. Low, R. J. Park, M. D. Sutherland, and	
Iris Vessey	182
Photochemical reactions of azo compounds. IV. Further photochemical cyclo-	
dehydrogenations. By G. M. Badger, N. C. Jamieson, and G. E. Lewis	190
Pyrimidine reactions. VIII. Methiodides formed from some dimethylamino-	
pyrimidines. By D. J. Brown and T. Teitei	199
Phenanthridines. IV. Pschorr reactions with sulphonamides derived from	
$N\text{-}o\text{-}\mathrm{aminobenzylaniline}$: synthesis of 4-bromophenanthridine and forma-	
tion of 6-phenyl-7 H -dibenzo $[d,f]$ - $[1,2]$ -thiazepine-5-dioxide. By J. L.	
Huppatz and W. H. F. Sasse	206
The structure and partial synthesis of canaric acid. By R. M. Carman and	
Deima Cowley	213
Colouring matters of Australian plants. XII. Quinones from Dianella revoluta	
and Stypandra grandis. By R. G. Cooke and L. G. Sparrow	218
Moretenol and other triterpenes from Ficus macrophylla Desf. By M. N.	
Galbraith, (the late) C. J. Miller, J. W. L. Rawson, E. Ritchie, J. S.	
Shannon, and W. C. Taylor	226
Degradation of carbohydrates. V. Isolation of intermediates in the formation of	~
5-(hydroxymethyl)-2-furaldehyde. By E. F. L. J. Anet	240
Short Communications	
Vapour pressures of cyclopentadiene and bis(cyclopentadienyl)magnesium. By	
H. S. Hull, A. F. Reid, and A. G. Turnbull	249
Corrigendum	252

NUMBER 3, MARCH 1965

Polarizability of non-bonding electron pairs. By M. J. Aroney, R. J. W. Le	C8 125
	53
Molecular force field for chlorine trifluoride. By M. G. Krishna Pillai, K.	00
	61
Three new staphylonuclear chloromolybdates: K ₆ Mo ₃ Cl ₁₂ , (NH ₄) ₇ Mo ₃ Cl ₁₃ ,H ₂ O,	
and Cs ₆ Mo ₄ Cl ₁₆ . By I. R. Anderson and J. C. Sheldon	271
Some studies of Nb ₆ Cl ₁₄ ,7H ₂ O and analogous compounds. By R. J. Allen and	
	277
The diffusion of monocarboxylic acids in aqueous solution at 25°. By L. A.	
	285
Wilzbach tritiation studies. I. Isotope distribution in tritium-labelled	
anthranilic acid, isopropanol, and phenyl allyl ether. By J. L. Garnett,	
	297
Kinetics and mechanisms of mercuration of aliphatic carboxylic acids. By	
0	305
Equilibria in acetic acid: ionic association constant of oxonium perchlorate,	
acid-base equilibrium constant of oxonium acetate, and autoprotolysis	
	321
Schiff base equilibria. I. Formation and distribution of N-n-butylsalicylidene-	
	329
The analysis of the proton magnetic resonance spectra of heteroaromatic	337
systems. IV. Benzofuran, indole, and related compounds. By P. J.	
	353
Pyrrole studies. IV. The electronic spectra of alkyl- and ethoxycarbonyl-	00
	363
Long-range spin-spin coupling in avenaciolide and related compounds. By	
	373
Azaindoles. II. The synthesis of pyrazolo[4,3-c]pyridines. By G. M. Badger	
	379
Flavan derivatives. XIII. The formation of 1,3-diarylpropan-2-ols and	
2,3-diarylpropan-1-ols from flavan-3-ols. By J. W. Clark-Lewis and	
	389
Estimation of aromatic protons in methanol lignins of Pinus radiata and	
Eucalyptus regnans from proton magnetic resonance spectra. By D. E.	
	101
Amino acids and peptides. X. The reduction of cystine and related disulphides	
7 -1 -11	111
The preparation of dimedone derivatives of amino acids and their use in	
	117
Peptides of L-leucine and glycine via N-chloroacetyl intermediates. By A. F.	
Beecham 4	123

NUMBER 3, MARCH 1965 (Continued)

	PAGE
Short Communications	
Equilibria in acetic acid: the evaluation of the ionic association constant and limiting conductivity for the second component of a mixture. By R. J. L. Martin	427
Sioumis	
Number 4, April 1965	
Some complex anions containing rhenium. By R. Colton	435
The magnetic properties of rhenium halides. II. Rhenium trichloride. By D. Brown and R. Colton	441
Oxide halides of molybdenum and tungsten. I. Preparations. By R. Colton and I. B. Tomkins	
Octahedral cobalt(III) complexes in dipolar aprotic solvents. I. The substitution of thiocyanate into the cis-chlorodimethylsulphoxidobisethylenediamine-cobalt(III) ion in anhydrous dimethylsulphoxide and NN-dimethyl-	
formamide. By L. F. Chin, W. A. Millen, and D. W. Watts	453
in solution. By A. J. Marriage	463
Rate constants for a system, $A \rightleftharpoons B \rightarrow C$, and an application to the Dimroth rearrangement. By D. D. Perrin and I. H. Pitman	471
Electronic conduction in polymers. IV. Polymers from imidazole and pyridine By R. McNeill, D. E. Weiss, and D. Willis	
Electronic conduction in polymers. V. Aromatic semiconducting polymers	
By B. A. Bolto, D. E. Weiss, and D. Willis Electronic conduction in polymers. VI. The chemical consequences of space charge effects in conducting polymers. By A. S. Macpherson, R. Siudak	в
D. E. Weiss, and D. Willis	-
By D. P. Graddon and E. C. Watton	
Infrared studies of hydrogen bonding between pyridine and alcohols. By T. J. V	
Findlay and A. D. Kidman	
By W. E. Hillis and D. H. S. Horn	. 531
Structure of α-hydroxysantonin and some aspects of the stereochemistry of related eudesmanolides and guaianolides. By J. T. Pinhey and S.	
Sternhell	
Simple pyrimidines. VIII. The fine structure of isocytosine, thiocytosine, and some isomers. By D. J. Brown and T. Teitei	

Number 4, April 1965 (Continued)

1	PAGE
The chemical constituents of Galbulimina species. V. The isolation of further alkaloids. By Sylvia V. Binns, P. J. Dunstan, G. B. Guise, G. M. Holder, A. F. Hollis, R. S. McCredie, J. T. Pinhey, R. H. Prager, M. Rasmussen, E. Ritchie, and W. C. Taylor	569 575
Short Communications	
Infrared absorption of some 3,4-disubstituted pyridines and pyridine 1-oxides.	
By R. Alan Jones and Ravindra Pratap Rao	583
J. S. Fitzgerald	589
Extractives of the Ternstroemiaceae. I. The occurrence of betulic acid in Ternstroemia cherryi (Bail.) and T. merrilliana Kobuski. By J. L. Courtney,	
J. J. H. Simes, and W. Stern	591
Inactive radical termination of chains with catalysis. By R. L. Failes, V. R. Stimson, and E. S. Swinbourne	593
Number 5, May 1965	
Antisymmetric features of atomic charge density: their significance in studies	
of electron redistribution accompanying bonding, and their relevance to the	
general problem of structure and properties of molecules. By B. Dawson	595
Apparent molar volumes in dilute aqueous propanol solutions. By D. M. Alexander and D. J. T. Hill	605
Polarography of aromatic azo compounds. I. Effect of substituents on the	000
electroreduction of azo compounds. By T. M. Florence	609
tionation of 4-aminohydrazobenzene-4'-sulphonic acid. By T. M. Florence Infrared spectrum, potential constants, and structure of thio-thionyl fluoride.	619
By R. D. Brown, G. P. Pez, and M. F. O'Dwyer	627
Organic semiconductors: effect of substituents and metal ions on electrical	
conductivity of Schiff bases. By E. W. Gooden Schiff base equilibria. II. Beryllium complexes of N -n-butylsalicylideneimine	637
and the hydrolysis of the Be ² ion. By R. W. Green and P. W. Alexander	651
Metal complexes of Schiff bases derived from thiophen-2-aldehyde. By R. K. Y.	
Ho and S. E. Livingstone	659
Thio derivatives of β -diketones and their metal chelates. I. Some monothio- β -diketones and their nickel(II) chelates. By S. H. H. Chaston, S. E.	
Livingstone, T. N. Lockyer, V. A. Pickles, and J. S. Shannon	673
Coordination compounds of substituted 1,10-phenanthrolines and related	
dipyridyls. V. Complexes of cobalt and 2,9-dimethyl-1,10-phenanthroline.	001
Ry D R Foy J R Hall and R A Plowman	691

NUMBER 5, MAY 1965 (Continued)

P.	AGE
The reaction of N-t-butyl-2,4,6-trinitrobenzamide with sodium hydroxide.	
A unimolecular nucleophilic aromatic substitution. By P. J. Hutchison and	
R. J. L. Martin	699
The analysis of the proton magnetic resonance spectra of heteroaromatic systems.	
V. Diazanaphthalenes. By P. J. Black and M. L. Heffernan	707
Nuclear magnetic resonance studies. III. 'otational isomerism of some C-	
glucosylflavonoid acetates. By R. A. Aade, W. E. Hillis, D. H. S. Horn,	
	715
and J. J. H. Simes	715
	=00
thiophene derivatives. By C. K. Coogan, D. H. S. Horn, and J. A. Lamberton	723
The direction of platinum-catalysed hydrogenation of an unsymmetrical	
anhydride in the norbornane series. By R. F. C. Brown, S. Sternhell, and	
R. N. Warrener	731
Pyrimidine reactions. IX. The amination of chloropyrimidines with branched	
alkylamines and di-n-alkylamines. By D. J. Brown and Janice M. Lyall	741
Free-radical rearrangement of N-chloro-amides: a synthesis of lactones. By	
A. L. J. Beckwith and J. E. Goodrich	747
Reactions of epoxides. III. Reactions of some epoxides in the c-nor-D-homo	
steroid series. By J. M. Coxon, M. P. Hartshorn, and D. N. Kirk	759
, , , , , , , , , , , , , , , , , , , ,	
Short Communications	
The Dimroth rearrangement. III. Formation of 2-hydroxypyrimidine from	
1,2-dihydro-2-imino-1-methylpyrimidine. By D. D. Perrin and I. H.	
Pitman	763
Triterpenoid constituents of Backhousia angustifolia F. Muell. By K. T. Potts	100
	707
and S. K. Roy	767
Corrigendum	768
Number 6, June 1965	
The state of the s	
Observations on the reaction calcium sulphate hemihydrate $+$ water \rightleftharpoons	
gypsum. By M. Goto and M. J. Ridge	769
Molten salt mixtures. VIII. The refractive index of molten salt mixtures and	
their molar refractivities. By H. Bloom and B. M. Peryer	777
An investigation of the nickel gluconate system. By L. G. Joyce and W. F.	
Pickering	783
Hydrolysis of amides. I. The hydrolysis of acetamide and chloroacetamide in	
dilute acid. By P. D. Bolton and I. R. Wilson	795
Equilibria in acetic acid: ionic association constant of acetamidium perchlorate	
and acid-base equilibrium constant of acetamidium acetate at 105.7°.	
By R. J. L. Martin	801

Number 6, June 1965 (Continued)

PAG	E
Acid hydrolysis of acetamide in aqueous acetic acid. By R. J. L. Martin 80	
Reactions of aroyl peroxides. VI. Reactions of mixed peroxides with benzene	
and nitrobenzene. By Margarita Mingin and (the late) K. H. Pausacker 82	21
Reactions of aroyl peroxides. VII. Di-p-nitrobenzoyl peroxide with p-dichloro- benzene, naphthalene, and nitrobenzene. By Margarita Mingin and	
(the late) K. H. Pausacker	31
Degradation of carbohydrates. VI. Isolation and structure of some glycos-2-	
	37
Constitution of the glucan from mango, Mangifera indica L. II. Barry degradation studies. By A. Das and C. V. N. Rao	45
Structural investigations of the araban from guava, Psidium guajava L. By	
	51
Some reactions of acronycidine and related compounds. By T. J. Batterham	
and J. A. Lamberton 85	59
By-products in the reaction of 2-picoline N -oxide with acetic anhydride. By	
P. W. Ford and J. M. Swan	67
Pyrrole studies. V. Applications of the Wittig reaction to the synthesis of	
10	75
The synthesis and polymerization of peptide p-nitrophenyl esters. By F. H. C. Stewart	87
Short Communications	
The infrared spectra of quaternary 'onium cations of Group VB elements.	
IV. The P-C stretching vibrations of p-substituted benzyltriphenyl-	
phosphonium chlorides and related compounds. By R. Alan Jones and	
	03
Quinoxaline derivatives. IX. Mechanisms for the reactions of alloxan with	
o-dialkylaminoanilines. By J. W. Clark-Lewis, J. A. Edgar, J. S.	07
m · · · · · · · · · · · · · · · · · · ·	11
	15
•	10
	19
The preparation and stability of perinaphthane. By I. K. Lewis and R. D. Topsom	23
Some constituents of Rejoua aurantiaca Gaud. and Voacanga papuana (F.	
	27
The use of sequestering agents in the preparation of ε-acyl-L-lysine and δ-acyl-	33

CONTENTS

NUMBER 7, JULY 1965

	PAGE
Reduction of the alkali and alkaline earth halides in high-frequency discharges.	
I. Hydrogen discharge. By F. K. McTaggart	937
Reduction of the alkali and alkaline earth halides in high-frequency discharges.	
II. The role of electrons. By F. K. McTaggart	949
Cerium tetrafluoride. I. Preparation and reactions. By W. J. Asker and A. W.	
Wylie	959
Cerium tetrafluoride. II. The system cerium tetrafluoride-cerium trifluoride.	
By W. J. Asker and A. W. Wylie	969
The effect of pressure on excimer formation. By HP. Seidel and B. K. Selinger	977
An analysis of the band envelopes of the trans and gauche tin-carbon stretching	
frequencies. By R. A. Cummins	985
Catalytic deuterium exchange reactions with organics. XII. Further studies in	
platinum catalyst preparation—the process of self-activation. By J. L.	000
Garnett and W. A. Sollich	993
Catalytic deuterium exchange reactions with organics. XIII. Characteristic	
reactions of the Group VIII transition metals. By J. L. Garnett and	1000
W. A. Sollich	1003
Nickel-catalysed hydrogen exchange of alkylaromatic hydrocarbons and toluic	
acid derivatives with deuterium oxide. By C. G. Macdonald and J. S. Shannon	1009
Some oxidation reactions of branched-chain carboxylic acids. By A. L. J.	1009
	1023
Beckwith and J. E. Goodrich	1023
derivatives and of some isoflavans. By J. W. Clark-Lewis, I. Dainis, and	
G. C. Ramsay	1035
Steroidal α,β -epoxyketones. IV. Synthesis of the isomeric 6β -bromo-4,5-epoxy-	1000
cholestan-3-ones. By D. J. Collins and J. J. Hobbs	1049
The composition of grape cuticle wax. By F. Radler and D. H. S. Horn	1059
Synthetic studies in the 1,2-dithiole series. III. Attempts to convert dithioles	2000
into pyrrolodithioles. By R. F. C. Brown and I. D. Rae	1071
The cardiac glycosides of Cerbera species. II. The structure of cerbertin and	
deacetylcerbertin. By J. Cable, R. G. Coombe, and T. R. Watson	1079
Glycolamide esters of N-acylamino acids and peptides. By F. H. C. Stewart	1089
The preparation of some benzyloxycarbonyl peptide p -nitrobenzyl esters derived	
from valine and glutamic acid. By F. H. C. Stewart	1095
Short Communications	
Vapour adsorption on "Phoenix" glass surfaces. By G. A. Bottomley, I. H.	
Coopes, G. L. Nyberg, and T. H. Spurling	1105
Infrared spectra of substituted trichloroacetamidines. By R. A. Cummins and	
A. G. Moritz	1107
2-Hydroxy- and 7-hydroxy-cadalene. By M. J. Gallagher and M. D. Sutherland	1111

Number 8, August 1965

	PAGE
The electronic structure of N_2O_4 . I. σ -Electron delocalization study. By R. D.	
Brown and R. D. Harcourt	1115
Molecular susceptibility. The determination of molar Cotton-Mouton	*
constants of solutes at infinite dilution. By R. J. W. Le Fèvre, Pamela	1100
H. Williams, and (in part) J. M. Eckert	1133
Ion-molecule reactions in ketones. By B. C. de Souza and J. H. Green	1153
Some physical properties of aqueous solutions of tetramethylammonium	1101
bromide and tetramethylammonium iodide. By Barbara J. Levien Molten salt mixtures. IX. The thermal conductivities of molten nitrate	1161
	1171
systems. By H. Bloom, A. Doroszkowski, and S. B. Tricklebank Free radicals in the reaction between t-butyl hydroperoxide and titanous ion:	1171
some observations by electron spin resonance spectrometry. By M. F. R.	
Mulcahy, J. R. Steven, and J. C. Ward	1177
Organoaluminium compounds. IX. Inhibition by coordinating solvents of the	1111
reaction of trimethylaluminium with triethylaluminium. By T. Mole	1183
Copper(II) catalysis of the hydrolysis of glycylglycine. By I. J. Grant and	1100
R. W. Hay	1189
The uncatalysed and nickel(II) catalysed decarboxylation of dihydroxyfumaric	1100
acid. By R. W. Hay and Sylvia J. Harvie	1197
Proton magnetic resonance spectra of some 1,2-dithiole-3-ones and 1,2-dithiole-	1101
3-thiones. By R. F. C. Brown, I. D. Rae, and S. Sternhell	1211
Studies of aromaticity by nuclear magnetic resonance spectroscopy. IV.	
The proton chemical shifts in cycl[3,2,2]azine. By L. M. Jackman,	
Q. N. Porter, and G. R. Underwood	1221
Chorismic acid. A branch point intermediate in aromatic biosynthesis. By	
J. M. Edwards and L. M. Jackman	1227
Nucleophilic replacement of methoxyl in the reaction of a sterically hindered	
o-benzoquinone with o-phenylenediamine. By F. R. Hewgill, D. G.	
Hewitt, and P. B. Langley	1241
The formation of aromatic hydrocarbons at high temperatures. XXIV. The	
pyrolysis of some tobacco constituents. By G. M. Badger, Jillian K.	
Donnelly, and T. M. Spotswood	1249
Azaindoles. III. The synthesis of pyrazolo[3,4-b]pyridines and pyrazolo-	
[3,4-d]pyrimidines. By G. M. Badger and Ravindra Pratap Rao	1267
Synthesis of 6,7,8-trimethoxy-1-naphthol. By K. H. Bell and U. Weiss	1273
The structure and formation of voaluteine. By G. B. Guise, E. Ritchie, and	
W. C. Taylor	1279
Composition of the unsaponifiable matter of vernix caseosa. By D. T. Downing	1287
Short Communications	
The molecular conformation of tetramethylcyclobutane-1,3-dione. By CY.	
Chen and R. J. W. Le Fèvre	1293
Beryllium complexes of Schiff bases. By R. W. Green and P. W. Alexander	1297

Number 8, August 1965 (Continued)

	PAGE
Addition compounds of acetaldehyde. By L. C. Gruen and P. T. McTigue Preparation of the methyl p-galactopyranosides. By J. L. Frahn and J. A.	1299
Mills	1303
Application of the Stephen reduction to 4-cyanodiphenyl. By C. J. Dahl and K. G. Lewis	1307
Number 9, September 1965	
Cell model for quantum fluids. III. Compressional waves in liquid hydrogen.	
By Ru-Yong Chen, D. Henderson, and R. D. Reed	1309
G. M. Lukaszewski, and A. G. Turnbull	1317
dipyridyls. VI. Complexes of copper(II) and 4,6,4',6'-tetramethyl-2,2'-	
bipyridine. By J. R. Hall, M. R. Litzow, and R. A. Plowman	1331
Coordination compounds of substituted 1,10-phenanthrolines and related dipyridyls. VII. Complexes of copper(I) and 4,6,4',6'-tetramethyl-2,2'-	
bipyridine. By J. R. Hall, M. R. Litzow, and R. A. Plowman	1339
Coordination compounds of substituted 1,10-phenanthrolines and related dipyridyls. VIII. Complexes of silver and 2,9-dimethyl-1,10-phenanthro-	1000
line. By J. R. Hall, R. A. Plowman, and H. S. Preston Substituent effects in naphthalene. I. The syntheses of 4, 5, 6, 7, and 8-substituted	1345
By W. Adcock and P. R. Wells	1351
Substituent effects in naphthalene. II. The strengths of the 4, 5, 6, 7, and	1001
8-substituted 2-nahpthoic acids. By P. R. Wells and W. Adcock	1365
Nitration of the methylnaphthalenes. By P. G. E. Alcorn and P. R. Wells	1377
Nitration of the methoxynaphthalenes. By P. G. E. Alcorn and P. R. Wells	1391
A study of the interaction of copper(II), zinc(II), and cadmium(II) with trans-	
fusion gelatin. By Wahid U. Malik and M. Muzaffaruddin	1397
Nuclear magnetic resonance studies. V. The tautomerism of tasmanone and	
related β -triketones. By I. R. C. Bick and D. H. S. Horn	1405
Carnaubadiol, a triterpene from carnauba wax. By C. S. Barnes, M. N. Galbraith,	
E. Ritchie, and W. C. Taylor	1411
${\bf Further\ experiments\ with\ the\ methyl quinolizidines\ and\ their\ methiodides}.$	
By K. Schofield and R. J. Wells	1423
Alkaloids of the Australian Rutaceae: Halfordia scleroxyla. III. Mass spectro-	
metry of halfordinol and related oxazoles. By W. D. Crow, J. H. Hodgkin,	1.400
and J. S. Shannon	1433
The chemistry of the Euphorbiaceae. XII. Compounds derived from a new	1441
Beyeria species. By P. R. Jefferies and T. G. Payne	1441
D 1 H V C. 11 I H C.	1451
Rossler, H. V. Simes, and J. J. H. Simes	1451

Number 9, September 1965 (Continued)

	PAGE
The degradation of lactose by interaction with case in. By E. L. Richards The preparation of substituted γ -benzyl-L-gluta mates and β -benzyl-L-aspart-	1471
ates. By R. Ledger and F. H. C. Stewart	1477
Short Communications	
$Addition\ compounds\ of\ phosphorus\ pentafluoride.\ I.\ The\ interaction\ of\ dimethyl$	
ether with phosphorus pentafluoride at low temperatures. By I. K. Gregor 5,5'-Dihydroxy-7,4',7",4'"-tetramethoxy-8,3'"-biflavone from <i>Dacrydium</i>	1485
cupressinum Lamb. By R. Hodges	1491
The synthesis of dihydro- and tetrahydro-canaric acid. By R. M. Carman. $\ \ldots$	1493
${\bf 2-Alkylidene-1-phenyloxazolidine-4,5-diones.\ \ By\ K.\ R.\ Markham\ and\ I.\ D.\ Rae}$	1497
NUMBER 10, OCTOBER 1965	
${\bf Molecular\ polarizability.\ The\ optical\ anisotropies\ of\ certain\ aromatic\ molecules}$	
as solutes. By M. J. Aroney, R. J. W. Le Fèvre, and J. D. Saxby Protodemercuration of organomercuric chlorides. I. Aromatic mercuric	1501
chlorides. By R. D. Brown, A. S. Buchanan, and A. A. Humffray Protodemercuration of organomercuric chlorides. II. Heterocyclic mercuric	1507
chlorides. By R. D. Brown, A. S. Buchanan, and A. A. Humffray	1513
Protodeboronation of thiophenboronic acids. By R. D. Brown, A. S. Buchanan, and A. A. Humffray	1521
Iodinolysis of boronic acids. By R. D. Brown, A. S. Buchanan, and A. A.	
Humffray	1527
Determination by mass spectrometry of the structure of bisbenzoylacetone- ethylenediimine and its metal chelates. By S. H. Chaston, S. E. Living-	
stone, T. N. Lockyer, and J. S. Shannon	1539
complexes with low magnetic moments. By L. F. Lindoy, S. E. Living-	
stone, and T. N. Lockyer	1549
The kinetics of the thermal decomposition of trifluoroacetaldehyde. By N. L.	
Arthur and T. N. Bell	1561
Vibrational amplitudes for thionyl tetrafluoride and sulphur tetrafluoride.	1575
By M. G. Krishna Pillai, K. Ramaswamy, and R. Pichai Tungsten hexaphenoxide and ring-substituted derivatives. By P. I. Mortimer	1575
and Margaret I. Strong	1579
Internal conversion in aromatic and N-heteroaromatic molecules. By J. P.	20.0
Byrne, E. F. McCoy, and I. G. Ross	1589
Nuclear magnetic resonance spectra of pyrrolizidine alkaloids. I. The spectra	
of retronecine and heliotridine. By C. C. J. Culvenor, M. L. Heffernan,	100=
and W. G. Woods	1605

Number 10, October 1965 (Continued)

	PAGE
Nuclear magnetic resonance spectra of pyrrolizidine alkaloids. II. The pyrrolizidine nucleus in ester and non-ester alkaloids and their derivatives. By C. C. J. Culvenor and W. G. Woods	1625
Photochemical reactions of azo compounds. V. Photochemical cyclodehydrogenations of amino-, acetyl-, and nitro-azobenzenes. By G. M. Badger,	1025
C. P. Joshua, and G. E. Lewis	1639
and T. A. Geissman	1649
Savige, and B. J. Sweetman	1655
peptides. By D. E. Rivett and J. F. K. Wilshire	1667
A. V. Robertson	1677
Short Communications	
Influence of solvents on infrared frequencies—the complexing of methyl ethyl ketone and acetophenone with p -cresol. By M. G. Krishna Pillai, K.	
Ramaswamy, and R. Pichai	1681
complexes of cadmium. By J. N. Gaur and D. S. Jain Saponins and sapogenins. XXVII. On the unidentified acid and neutral sapogenins from the seeds of <i>Luffa aegyptica</i> Mill (black variety). By I. P.	1687
Varshney, M. S. Y. Khan, and S. C. Sharma	1689
Fielding and N. C. Stephenson	1691
By L. A. Summers	1695
The 9-anthrylmethyl esters of N -acylamino acids. By F. H. C. Stewart	1699
Number 11, November 1965	
Covalent bond refractions and the periodic table. I. Bonds to hydrogen. By	
P. M. Christopher and J. M. Fitzgerald, Jr	
and J. E. Lane	1711
J. Aggett, and R. B. Temple	1719
with 3-alkylacetylacetones. By D. P. Graddon and R. A. Schulz	1731

NUMBER 11, NOVEMBER 1965 (Continued)

	PAGE
1,10-Phenanthroline and 2,2'-bipyridine chelates of higher-valent manganese.	
By H. A. Goodwin and R. N. Sylva	1743
The association of alkylurea molecules in solution. By R. L. Werner, V. F.	
Duckworth, and H. J. Schnitzerling	1751
Proton magnetic resonance spectra of some β -methylstyrenes, β , β -dimethyl-	
styrenes, and α -methylstilbenes; and a discussion of long-range shielding	
and coupling effects in these and related systems. By H. Rottendorf,	
S. Sternhell, and J. R. Wilmshurst	1759
Reactions of o-quinones with 1-vinylnaphthalene. By T. G. Corbett, W.	
Davies, and Q. N. Porter	1775
Reactions of benzyne and 1,2-naphthyne with some dienes. By T. G. Corbett	
and Q. N. Porter	1781
The absolute configuration of (-)-angolensin. By W. D. Ollis, M. V. J. Ramsay,	
and I. O. Sutherland	1787
The absolute configurations of (-)-angolensin and some related 1,2-diaryl-	
propanes. By J. W. Clark-Lewis and R. W. Jemison	1791
The nuclear magnetic resonance spectra of the codeine isomers and their	
derivatives. By T. J. Batterham, K. H. Bell, and U. Weiss	1799
A proton magnetic resonance study of molecular overcrowding in N-alkyl-o-	
nitroanilines. By I. D. Rae	1807
Pyrimidine reactions. XI. Amination rates for two chlorodimethylpyrimidines	
without solvent. By D. J. Brown and Janice M. Lyall	1811
Aromatic nitrogen bridgehead compounds. I. The dipyrido[1,2-c:2',1'-e]-	
imidazolium and related cations. By I. C. Calder and W. H. F. Sasse	1819
Chemistry of pyrrolic compounds. I. Synthesis of oxyporphyrins. By P. S.	
Clezy and A. W. Nichol	1835
Short Communications	
Gamma-irradiation of uracil in de-aerated aqueous solutions. By M. N.	
Khattak and J. H. Green	1847
Phototarnishing of silver and copper. By P. T. McTigue and D. J. Young	1851
Imidazoles from ammoniacal solutions of glycolaldehyde and hydroxy-	
pyruvaldehyde. By M. R. Grimmett and E. L. Richards	1855
Polystigmasteroxysilanes and tristigmasteroxytrimethylcyclosiloxane. By	
Sheng-Lieh Liu and Hung-Leo Lin	1861
The structure of trichlorocodide. By T. J. Batterham and U. Weiss	1863
Preparation and properties of some pleiadene derivatives. By J. T. Craig	1865
The chemistry of the Euphorbiaceae. XIV. The flavones from a Beyeria sp.	
By R. M. Dawson, C. A. Henrick, P. R. Jefferies, and E. J. Middleton	1871
Condensation experiments with the o-cyanobenzyl esters of some amino acid	
and peptide derivatives. By F. H. C. Stewart	1877
Corrigendum	1883

Number 12, December 1965

	PAGE
The electronic structure of N_2O_4 . II. The " π -only" structure. By R. D. Brown and R. D. Harcourt	1885
A model describing the variation in free energy in compound and single phase regions in binary systems containing miscibility gaps. By J. D. Esdaile	1897
The influence of pressure on the kinetics and orientation of Friedel-Crafts benzoylations. By D. W. Coillet, S. D. Hamann, and E. F. McCoy	1911
The circular dichroism and rotatory dispersion of cobalt(III) oxalato-acetylacetonato and oxalato-glycinato complexes. By the late F. P. Dwyer, I. K. Reid, and A. M. Sargeson	1919
Thio derivatives of β -diketones and their metal chelates. II. α -Substituted monothio- β -diketones as ligands. By R. K. Y. Ho, S. E. Livingstone, and T. N. Lockyer	1927
Some copper(II) and nickel(II) amine-cyanide derivatives. I. Solution equilibria. By Y. M. Curtis and N. F. Curtis	1933
Kinetic medium effects. II. Hydrolysis of esters in electrolyte solutions. By P. T. McTigue and A. R. Watkins	1943
Wilzbach tritiation studies. II. Stereospecificity in the tritiation of alcohols. By B. R. Crawford and J. L. Garnett	1951
Nuclear magnetic resonance spectra of polycyclic aromatic compounds. II. Substituted benz[a]anthracenes. By T. J. Batterham, L. Tsai, and H. Ziffer	1959
Derivatives of orthoacids. III. Sulphonamide derivatives. By G. Crank and F. W. Eastwood	1967
Convenient preparation of a crystalline derivative of $meso$ -tartraldehyde. By S. J. Angyal and S. D. Gero	1973
Chemistry of pyrrolic compounds. II. Some aspects of the chemistry of dipyrryl ketones. By P. S. Clezy and A. W. Nichol	1977
Insect venoms, attractants, and repellents. VII. A stereospecific synthesis of iridodial. By S. A. Achmad and G. W. K. Cavill	1989
The alkaloids of Atherosperma moschatum Labill. II. Non-phenolic alkaloids. By I. R. C. Bick and G. K. Douglas	1997
The chemistry of the Euphorbiaceae. XV. Further diterpenes from <i>Ricinocarpus stylosus</i> : 1α,19-dihydroxy-16α-(—)-kauran-17-oic acid. By C. A. Henrick and P. R. Jefferies	2005
Chemical studies of the Proteaceae. I. Grevillea robusta A. Cunn. and Orites excelsa R. Br. By E. Ritchie, W. C. Taylor, and Stephanie T. K. Vautin	2015
The constituents of <i>Melicope broadbentiana</i> F. M. Bail. The structures of melibentin, melicopol, and methylmelicopol. By E. Ritchie, W. C. Taylor, and Stephanie T. K. Vautin	2021

Number 12, December 1965 (Continued)

	PAGE
Short Communications	
Addition compounds of phosphorus pentafluoride. II. The low temperature reaction of phosphorus pentafluoride with diisopropyl ether. By I. K.	
Gregor	2035
Diffusion potentials and the calculation of thermodynamic activities in binary molten salt mixtures from the electromotive forces of concentration cells with transference. By H. Bloom and A. J. Easteal	2039
Constituents of two Quercus species of Hong Kong. By (Miss) W. H. Hui,	
C. T. Ho, and C. W. Yee	2043
Glucosylsulphamide and mannosylsulphamide. By H. H. Hatt and A. C. K.	
Triffett	2045
Syringylamine and some derived amides. By D. Amos	2049
Corrigenda	2052
Index to Volume 19	9059